

Shivani Chaudhary

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EDUCATION

- ❖ **Ph.D.** in Physics (Experimental Condensed Matter Physics) **July 2014 – February 2021**
Jawaharlal Nehru University, New Delhi, India.
Thesis Title: “Study of Magnetoelectric Response in Honeycomb Oxides”
Supervisor: Professor Dr. Satyabrata Patnaik, Jawaharlal Nehru University, New Delhi, India
- ❖ **M. Sc.** in Physics (76.4%) **July 2011 - June 2013**
Kurukshetra University, Haryana, India
- ❖ **B. Sc.** in Physics (79.6%) **July 2008 – June 2011**
Kurukshetra University, Haryana, India

RESEARCH INTEREST

- ❖ Multiferroic Materials
- ❖ Linear Magnetoelectric Phenomena in Honeycomb Materials
- ❖ Neutron diffraction, Magnetoelectric Thin Film Heterostructure

BRIEF SUMMARY OF RESEARCH

- Established the pyroelectric and antiferromagnetic ground states of linear magnetoelectric materials such as $\text{Co}_4\text{Ta}_2\text{O}_9$ and $\text{Co}_4\text{Nb}_2\text{O}_9$ materials.
- Studied origin of magnetoelectric coupling in $\text{Co}_4\text{Ta}_2\text{O}_9$ and $\text{Fe}_4\text{Ta}_2\text{O}_9$ materials.
- Established magnetic structure of $\text{Fe}_4\text{Ta}_2\text{O}_9$.
- Study of magnetodielectric effect, dielectric properties and thermal stimulated depolarization currents in honeycomb layered $\text{Na}_2\text{Co}_2\text{TeO}_6$ material.
- Linear Magnetoelectric coupling in partially substituted $\text{Co}_4\text{NbTaO}_9$ and $\text{Fe}_4\text{NbTaO}_9$.
- Studied Magnetoelectric properties in arc melted synthesized $\text{Fe}_4\text{Nb}_2\text{O}_9$.

PUBLICATIONS

1. *Nature of magnetoelectric coupling in corundum antiferromagnet $\text{Co}_4\text{Ta}_2\text{O}_9$* , **S. Chaudhary**, P. Srivastava, S D Kaushik, V Siruguri and S Patnaik, *Journal of Magnetism and Magnetic Materials*, 475, 508-513 (2019).
2. *Magnetoelectric response in honeycomb antiferromagnet $\text{Fe}_4\text{NbTaO}_9$* , **S. Chaudhary**, V. Nagpal, and S. Patnaik, *Journal of Magnetism and Magnetic Materials* **515**, 167305 (2020).
3. *Magnetic structure driven ferroelectricity and large magnetoelectric coupling in antiferromagnet $\text{Co}_4\text{Nb}_2\text{O}_9$* . P. Srivastava, **S. Chaudhary**, V. Maurya, J. Saha, S. D. Kaushik, V. Siruguri, S. Patnaik, *Solid State Communications* **273**, 39-43 (2018).
4. *Magneto-dielectric coupling and non-ergodic electrical behaviour in hexagonal $\text{Sr}_{0.6}\text{Ba}_{0.4}\text{MnO}_3$ via local strain driven magnetic ordering*, Ritu Rawat, R. J. Choudhary, A. M. Awasthi, R. Raghunathan, A. Sagdeo, A. K

- Sinha, **S. Chaudhary**, S. Patnaik, and D. M. Phase, Journal of Magnetism and Magnetic Materials **497**, 165972(2020)
5. *Impact of crystal stacking sequence on electrical transport and dielectric properties of the nanocrystalline $BaCo_{0.9}Mn_{0.1}O_{3-\delta}$* . A. Kumar, **S. Chaudhary**, E. M. Abhinav, R. N. Mahato, Journal of Alloys and Compounds, **786**, 356-367 (2019).
 6. *Effect of structural stacking on magnetocaloric and magnetodielectric properties of $Ba_{1-x}Sr_xCo_{0.9}Mn_{0.1}O_{3-\delta}$ ($0 \leq x \leq 0.5$)*. A. Kumar, **S. Chaudhary**, R. N. Mahato, Physica B: Condensed Matter, **567**, 79-86 (2019).
 7. *Emergence of magnetoelectric-relaxor phase in $La_3Ni_2TaO_9$* , J. Saha, G. Sharma, S. Chaudhary, S. D. Kaushik, S. Patnaik and C. V. Tomy, Journal of Magnetism and Magnetic Materials **546**, 168825 (2022).
 8. *Evidence of Ferromagnetic short-range clusters and Itinerant electron behaviour in a Shandite $Co_3Sn_2S_2$* , V. Nagpal, S. Chaudhary and S. Patnaik, Journal of Magnetism and Magnetic Materials, 565, 170059 (2022).

CONFERENCE PROCEEDINGS

1. *High temperature magneto-electric effect in yttrium iron garnet (YIG)*, J Saha, **S. Chaudhary**, P. Majumdar, B. K. Kuanr and S.Patnaik, AIP Conference Proceedings **1731**, 140056 (2016).
2. *Study of multiferrocity in $Ba_3NbFe_3Si_2O_{14}$* , **S Chaudhary**, G. Gurjar, J. Saha, S. Patnaik, AIP Conference Proceedings **1832**, 130045 (2017).
3. *Evidence of magnetodielectric effect in honeycomb oxide $Na_2Co_2TeO_6$* , **S. Chaudhary**, P. Srivastava, S. Patnaik, AIP Conference Proceedings **1942**, 130045 (2018).
4. *Large magnetodielectric response in spinel $Ni_{0.5}Co_{0.5}Cr_2O_4$* , P. Srivastava, **S. Chaudhary** and S. Patnaik, AIP Conference Proceedings **1942**, 130048 (2018).
5. *Synthesis and magnetodielectric properties of arc melted $Fe_4Nb_2O_9$* , **S. Chaudhary**, Amardeep Sagar, A. Bhardwaj and S. Patnaik, AIP Conference Proceedings **2265**, 030583 (2020).
6. *Magnetic and transport properties of off-stoichiometry $Fe_{2-x}TiSn$ ($x=0.0, 0.02, 0.04$) based Heusler alloys*, A. D. Sagar, K. S. Jat, **S. Chaudhary**, A. Bhardwaj, V. V. Khovalyo and S. Patnaik, AIP Conference Proceedings **2265**, 030680 (2020).
7. *Study of magnetoelectric response in Fe_4NbTaO_9 (Poster Presentation)* **S. Chaudhary** and S. Patnaik, JEMS 2019, Uppsala, Sweden (26-30 August 2019).
8. *Magnetic and electronic properties of thin film heterostructure $La_{0.8}Ca_{0.2}MnO_3/SrRuO_3/PMN-PT$ (110)* **S. Chaudhary**, R. Chaurasia and S. Patnaik, AIP Conference Proceedings **2115**, 030325 (2019).

SCIENTIFIC AND TECHNICAL SKILLS

- ❖ FullProf suite (for Rietveld analysis)
- ❖ Origin 8.5 (for plotting the graphs and fitting the curves)
- ❖ Synthesis of polycrystalline samples (metals and oxides) with a conventional solid-state reaction method and arc melting method.
- ❖ Experience on handling the XRD and PE loop tracer instruments and analyzing the data.
- ❖ Thin-film deposition technique like Pulsed laser deposition.
- ❖ Handling of Cryogenic low temperature magnetic supply system (1.6-300 K; 0-7 T)

ACHIEVEMENTS AND AWARDS

- ❖ CSIR-UGC National Eligibility Test (NET) with JRF: Qualified two times in **Physical Science**.
- ❖ Got Rajiv Gandhi National Fellowship for Students with Disabilities (RGNFD) funded by UGC, New Delhi for perusing Ph. D degree.
- ❖ International Travel Grant (ITS) (SERB) for attending international conference JEMS 2019.

TEACHING EXPERIENCE

- ❖ Ramjas College, University of Delhi 11th Oct,2021 to 21 Nov, 2022
- ❖ Hansraj College, University of Delhi Nov, 2022 to till date